

Santa Rosa County HortSense



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Front Page by Dan Mullins

The new year begins with a lot of promise for the "green industry". The local building market appears to remain relatively strong, which means that there should be an increasing need for plant material, supplies and landscape maintenance services.

Opportunities for the production of fruits and vegetables continues to expand. We are currently working with the Team Santa Rosa Economic Development Council and Main Street Milton to move the vegetable market downtown.

The processed vegetable pilot project will likely continue. Last

season Team Santa Rosa Agri-business committee processed 1,000 pounds of locally grown lima beans and distributed them to restaurants for evaluation. Information from this project is being used to explore the potential for a frozen vegetable industry.

There will likely be some challenges during the year. Several serious new plant pests have appeared and we will need to be vigilant. The Lobate lac scale and the Aloe vera aphid are two such pests. They are described on page 5 of this issue.

Mark your calendar and plan to attend the Gulf States Horticulture Expo. It will be held January 30 to February 1 at the Mobile

Convention Center. This is a great opportunity to meet other people in the industry, locate suppliers, network and see the latest horticultural developments. Call and register ahead of time. The contact information is provided below.

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Upcoming Events

• **Jan. 16 to 18: Tropical Plant Industry Exhibition (TPIE).** Fort Lauderdale. Call (800) 375-3642

• **Jan 30 to Feb 1: The Gulf States Horticulture Expo Inc.** Mobile Convention Center, Mobile, AL. Call (334) 502-7777

February 4: Care of the Top Ten Landscape Plants. UF and UWF Continuing Education Horticulture Programs. Register through UWF Continuing Education Center. Call 850-474-2914

• **February 11: "Garden Design".** Pensacola Federa-

tion of Garden Clubs. Garden Center, 9th Ave.

• **February 18: Growing Turfgrass.** UF and UWF Continuing Education Horticulture Programs. Register through UWF Continuing Education Center. Call 850-474-2914

Pesticide Potpourri

♦ Cornell Univ. Entomologist and GMPRO Pest Management columnist Dan Gilrein advised growers who apply **Floramite** to mix the chemical with water that has a neutral to acid pH. Hardness levels should be 100 or lower. The product is slightly acidic and a high water pH and hardness can degrade or deactivate the active ingredient bifenazate. More information is available at <http://www.cdms.net/ldat/ld2RT005.pdf> (Source: Capital Region Greenhouse News, GMPRO greEnMAIL, for Oct. 29, 2002)

♦ Foliar nematodes (*Aphelenchoides*

fragariae and *Ditylenchus dipsaci*) can cause major damage to hostas. Research at Ohio St. Univ.-OARDC showed that most standard nematicides and several insecticides can substantially reduce nematode multiplication in leaves and the soil. Nematologist Parwinder Grewal found Dylox (80S) and Mocap reduced nematode multiplication in hosta leaves by as much as 90%, 45 days after treatment. Oxamyl, diazinon, Dylox (6.2G), ZeroTol and insecticidal soap killed 60%-70% of nematodes. Grewal said no nematicides fully cure the

problem after plants are infected. *A. fragariae*, which can feed on soil fungi, also has the ability to overwinter by moving deep into the soil to escape freezing temperatures. Experiments with diazinon, Mocap, oxamyl, ZeroTol and Dylox showed as much as 75% nematode control in the soil. Hot-water dips (124 degrees F) of infected leaves provided 100% nematode control. More information is available at <http://fusion.ag.ohio-state.edu/news/>

(Source: GMPRO greEnMAIL, for Oct. 29, 2002)

Nursery Notes

♦ *Ulmus parvifolia* Allee ('Emer II') from Tree Introductions Inc. in Athens, Ga., was named 2003 Urban Tree of the Year by Soc. of Municipal Arborists. This lacebark elm reaches 75 feet tall with an upright vase shape, is hardy in USDA Hardiness Zones 6-9 and is resistant to Dutch elm disease. It's extremely tolerant of snow, ice and storm damage but is susceptible to borers and chewing insects and has a low tolerance to salt, said Brent Marable, VP of Tree Introductions. (Source: Weekly NMPRO e-mail for Dec. 17, 2002)

♦ For the first time since the program began in 1990, The Perennial Plant Assoc. named a fern as its Perennial Plant of the Year. Japanese painted fern, *Athyrium nipponicum* 'Pictum,' was selected as the 2004 winner. It reaches 12-18 inches tall and wide and grows best in partial to full shade and moist,

organic soils. Its fronds contain shades of gray, green, red and purple and it's hardy in Zones 4-9. The 2003 winner is *Leucanthemum x superbum* 'Becky.' (Source: Weekly NMPRO e-mail for Dec. 17, 2002)

♦ Holloway Tree Farm and Holloway Irrigation Systems in Leesburg, Fla., received the 2002 Commissioner's Ag.-Environmental Leadership Award from Florida's AG commissioner Charles H. Bronson. Rufus Holloway developed a flood irrigation system to efficiently water his ornamental nursery. Rufus and Michael M. Holloway built a full-size system, laser sculpting the ground contour and using a special white polyethylene membrane to line the system's reservoir and multiple flood plains. The system saves 4 million-6 million gallons of water per acre each

year over traditional irrigation methods. For more information visit their website at <http://www.hisinc.biz>

♦ Florikan, a distributor of horticultural products headquartered in Sarasota received the state's Governor's Award for Most Innovative New Product of 2002. The company developed Staged Nutrient Release and 3 Stage Controlled Release Fertilizer. It increases the efficient use of fertilizer by providing plants required specific nutrients at certain times during the production cycle. The fertilizer only needs to be applied once per season. SNR allows growers to custom-design a fertilizer in various controlled-release forms and speeds to meet their specific production needs. For more information visit their website at <http://www.florikan.com/>

Featured Web Site

<http://www.usna.usda.gov/Hardzone>

The 2001 US National Arboretum "Web Version" of the USDA Plant Hardiness Zone Map USDA Miscellaneous Publication No. 1475, Issued January 1990 is now available at <http://www.usna.usda.gov>.

The map shows 10 different zones,

each of which represents an area of winter hardiness for the plants of agriculture and our natural landscape. It also introduces zone 11 to represent areas that have average annual minimum temperatures above 40 F (4.4 C) and that are therefore essentially frost

free.

The site provides information on use, details on Hardiness Zones and names of some plants listed under the coldest zones in which they normally succeed.



Turf Tips

The amount of lime applied depends on the degree of soil acidity.

The pH favorable for most turfgrass species ranges from 5.5 to 6.5. With proper nitrogen fertilization, centipede-grass can grow well over a range of 5.0 to 5.9; St. Augustine and zoysiagrass grow best in the range of 6 to 6.5.

Soil acidity can be reduced by the proper application of liming materials. There are a number of materials on the market that can be used to reduce soil acidity and raise the pH. These include calcitic and dolomitic limestone, burnt lime, hydrated lime, marl and certain industrial byproducts. The efficacy of the materials varies, depending on their chemical and physical properties.

- Agricultural liming material is a product whose calcium and magnesium compounds are capable of neutralizing soil acidity and which is sold or distributed for that purpose. Agricultural liming materials may either be in solid or liquid (suspension) form.
- Dolomitic liming materials are those materials composed of calcium and magnesium carbonates. Solid dolomitic liming materials

contain a minimum of six percent magnesium and liquid or suspension dolomitic liming materials must contain at least three percent magnesium.

- Calcitic liming materials are those materials composed wholly or primarily of calcium carbonate.

Calcium carbonate equivalent (CCE) or neutralizing value refers to the acid neutralizing capacity of an agricultural liming material expressed as a weight percentage of calcium carbonate. Certain liming materials—burnt lime (not less than 40 percent), hydrated lime (not less than 110 percent), other solid liming materials (not less than 85 percent) and liquid or suspension materials (not less than 45 percent) must be labeled to show their calcium carbonate equivalent.

Marl and industrial by-products vary in their composition and are not subject to a minimum calcium carbonate equivalent. They must, however, be labeled to show the minimum calcium carbonate contained in the product.

Selecting a material depends on the area to be treated and the desired results. The proximity to houses, magnesium status of the soil, availability of irri-

gation, type of equipment used, frequency of application and the speed at which a pH change needs to take place all factor in.

The amount of lime applied depends on the degree of soil acidity, the desired pH and the quality and type of lime used. The degree of acidity can be easily obtained by submitting a soil sample to any commercial or public soil test laboratory. In addition to obtaining soil pH, most labs will make a limestone recommendation for the specific grass.

Limestone recommendations from different labs may vary, often due to the soil depth upon which the recommendation is based. Some labs base the recommendation for established turf on an eight-inch depth, while others are based on a four-inch depth. Always check with the lab to ascertain the depth on which the limestone recommendation is based. This is particularly important when modifying recommendations for application of some of the fine-lime materials.

(Adapted from The Importance of Managing Soil pH in Turf Production, by C. Owen Plank, Georgia Extension.)

USDA Updates

Easy-to-Use Drip Tape

An Agricultural Research Service scientist has developed farm equipment that installs drip tapes on or just beneath the soil surface to precisely irrigate crops after seeds are planted. The same equipment can retrieve the drip tapes after crops are harvested. The apparatus works with reusable or disposable drip tape.



The new equipment was designed by Heping Zhu, an

agricultural engineer at the ARS National Peanut Research Laboratory in Dawson, Ga. The device uniformly distributes drip tape, extracts water from it, holds and supports the tape, and guides and adjusts its installation. The machinery chisels shallow trenches in the soil, places the tape in the trenches and then covers the tape with soil. Depth

(Continued on page 6)

Understanding Chilling Injury and Recognizing its Symptoms

Plants evolved around the world within relatively narrow temperature ranges and, although the cultivated descendents of wild plants may nowadays be grown worldwide, they still “remember” their origins. Thus, many cultivated fruits and vegetables that originated in the tropics and subtropics cannot tolerate low, but nonfreezing temperatures in the range of 32 to 55 °F (0 to 12.8 °C). The resulting adverse effects on their growth, development, maturation, or ripening when they are exposed to temperatures in this range are collectively referred to as “chilling injury.” For the postharvest handler, this is an ironic situation because, as we know, low temperature is our best tool for maintaining the quality of fresh fruits and vegetables.

An important yet simple concept to understand with regard to chilling injury is the “threshold temperature.” For each crop species, there is a unique temperature at or above which chilling injury will not occur. These threshold or lowest safe temperatures are the basis for the widely circulated “recommended” or “optimum” storage and handling temperatures for various chilling sensitive crops. The lower the temperature below the threshold temperature and the longer the exposure, the worse the chilling injury will be. Threshold temperatures for an individual crop can vary substantially among varieties and with differences in maturity – less mature or less ripe individuals are more sensitive to chilling. Chilling injury is also usually cumulative. This means that a number of even brief exposures to chilling temperatures, including those occurring in the field before harvest, may result in development of injury symptoms.

Examples of crops that are sensitive to chilling injury obviously include the tropical fruits. Less appreciated is the fact that almost all of the vegetables crops that are grown in the northern hemisphere as “warm season” vegetables are of tropical or subtropical origin and thus subject to chilling injury. These include beans, cucumbers, eggplants, most of the melons (cantaloupes are only slightly sensitive), peppers, all of the squashes (summer and winter types), sweet potatoes, and tomatoes. Asparagus and potatoes are cool season vegetables that are also chilling sensitive.

The visible symptoms of chilling injury vary widely among these sensitive crops , but typically include surface pitting,

watersoaked and discolored flesh, failure to ripen normally, and increased susceptibility to decay.

An extremely important (and insidious) consequence of chilling injury is flavor loss due to inhibition of aroma volatile production. This is often the first symptom of chilling injury and, in cases of mild chilling exposure, it may be the only symptom. The infamous “tasteless winter tomatoes” are almost certainly a result of shipping and storage at below the lowest safe temperature! Another ironic aspect of chilling injury is that chilling symptoms are usually most clearly expressed after the commodity is transferred to a warm,

Lowest safe (“threshold”) temperatures and chilling injury symptoms for sensitive vegetables.			
Vegetable	Threshold temperature		Visible chilling injury symptoms
	(°F)	(°C)	
Asparagus	35	2	Dull, gray-green and limp tips
Bean (lima)	37 – 41	3 – 5	Rusty-brown specks or spots
Bean (snap)	40 – 45	4 – 7	Pitting and russetting (rusty-brown streaks)
Cucumber	50	10	Pitting, watersoaked spots, decay
Eggplant	46	8	Surface scald, <i>Alternaria</i> rot, seed darkening
Cantaloupe			
(¾-slip)	36 – 41	2 – 5	Pitting, surface decay
(full-slip)	32 – 36	0 – 2	Pitting, surface decay
Honey Dew	45 – 50	7 – 10	Reddish-tan discoloration, pitting, surface decay, failure to ripen
Watermelon	50	10	Pitting, darkening or watersoaking of flesh
Okra	45	7	Discoloration, watersoaked areas, pitting
Pepper	45	7	Sheet pitting, <i>Alternaria</i> rot, seed darkening
Potato	40	4	Mahogany browning, sweetening
Squash			
(summer)	41	5	Pitting, watersoaked spots, decay
(winter)	50	10	Decay, especially <i>Alternaria</i> rot
Sweetpotato	55	13	Decay, pitting, internal discoloration, hard-core when cooked
Tomato			
(mature -green)	55	13	Slowed ripening, pitting, poor color, <i>Alternaria</i> rot
(ripe)	45 – 50	7 – 10	Watersoaking, softening, decay
Yam	61	16	Tissue discoloration and watersoaking, decay
Adapted from USDA Agriculture Handbook Number 66			

non-chilling environment. This means that handlers who carelessly expose sensitive vegetables to chilling temperatures may very well never see the injury that they have caused – that will fall to a subsequent handler, perhaps the ultimate consumer, baffled as to why seemingly high quality vegetables quickly spoiled at home. It also means that vegetables that were chilled in the field due to inclement weather may develop chilling injury even when they are handled at recommended temperatures!

(Source: *Vegetarian Newsletter*, November 2002)

Plant Problems

- **Lobate lac scale**, a deadly pest of wax myrtles, hibiscus, ficus and some monocots, is becoming a problem in Florida, said Lance Osborne, professor of entomology at the Univ. of Fla. They're infecting landscape and native plants. Other hosts of lobate lac scale are cocoplum, black olive, weeping



fig, buttonwood and sand live oak. This light- to dark-red-brown resinous scale has a globose shape with 4 lobes. Young individuals generally appear more lobed than mature adults. Old scale will appear black because of sooty molds. For control measures, visit the University of Florida's Featured Creatures web site at http://creatures.ifas.ufl.edu/orn/scales/lobate_lac.htm.

- The **aloe vera aphid**, *Aloephagus myersi* Essig, was found on an aloe vera plant in a discount store in Deltona, Florida, by Plant Industry inspector Stacey Simmons on 2 October 2002. This aphid is known to occur in California, but has not been reported before in Florida.

Aloe vera aphids are covered with fuzzy whitish wax. They feed at the bases of the leaves, or in rolled ends of damaged leaves. Soiling from honey dew and sooty mold can be extensive.

HOSTS: In the USA, the only known hosts are *Aloe* spp. In tropical Africa, host alternation (probably with gall formation) to *Pistacia* is suspected, but not documented (Blackman and Eastop 1994).

DISTRIBUTION: Aloe vera aphids were described from California, but probably are native to tropical Africa (Blackman and Eastop 1994). They also are found in greenhouses in Europe. (Source: DOACS Pest Alert 12/9/02)



Aloe vera aphid plant damage.

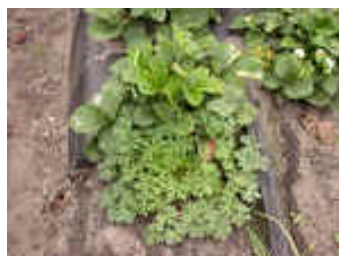
Fruit Facts

Carolina Geranium Contributes to Spider Mite Problem

Soon after transplants are set, tiny Carolina geranium seedlings begin to appear and by January these weeds can become large. As Carolina geranium plants grow they become excellent reproductive hosts for the twospotted spider mite and the tumid spider mite (the purple-red colored mite), complicating the management of these mites.

The weed is not such a problem when it grows from a transplant hole in the plastic mulch, because in that position miticide applications will kill resident mites on both the weed and the strawberry. Unfortunately, the Carolina geranium can grow in the row middles, row ends, on field and access road margins and on fallow, recently

tilled fields, places not normally treated with miticides. Spider mite populations increase on the Carolina geraniums in



these places and transfer to the strawberry crop, insuring a regular re-infestation. The mites can walk from the weeds to nearby strawberry plants or be carried greater distances in air currents on strands of silk they produce.

Good weed management is essential

for growers depending on miticides for spider mite control. The condition is not so problematic for growers depending on biological control with *Phytoseiulus persimilis*. This predator easily finds the available mites on the weeds and controls the pest mites. Growers can evaluate their vulnerability to the problem by finding the Carolina geranium on their farm and surveying the underside of the leaves for spider mites. Growers who use biological control should find predators about as often as spider mites. The Carolina geranium problem presents another good reason to consider biological control of spider mites.

(Source: Berry Times Newsletter, Feb. 2002. Article by Jim Price)

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(Continued from page 3)

of drip tapes can be adjusted from 0 to 5 centimeters.

To retrieve disposable drip tapes, a special spool, mounted with a 3-point hitch behind the tractor, was developed to quickly remove the tapes from the unit. The inexpensive apparatus both installs and retrieves the tape.

During removal, Zhu's device layers the drip tape evenly across rotating spools, which squeeze out any remaining water. Retrieval speed can be adjusted by changing the tractor

power takeoff speed. The drip tapes can then be reused during subsequent growing seasons.

In many crop production schemes, drip irrigation has advantages over other methods. It has been widely used in various applications throughout the world, resulting in crop yield increases and improved water conservation.

But surface drip irrigation's disadvantage is that users have to install and retrieve drip tapes every year, requiring high labor costs and more time. So the new equipment should greatly

benefit farmers using surface drip irrigation technology by increasing their crop yield and reducing their production costs. ARS is seeking a partner to further develop and commercialize the device.

ARS is the chief scientific research agency of the U.S. Department of Agriculture.

(Source: ARS News Service Agricultural Research Service, USDA Sharon Durham, (301) 504-1611, sdurham@ars.usda.gov November 19, 2002)